



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	APPLIED MATHEMATICS		Module Delivery
Module Type	BASIC		<input checked="" type="checkbox"/> Theory Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	UOMU0205033		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	Semester of Delivery	
Administering Department	Electrical Engineering Techniques	College	AL-MUSTAQBAL UNIVERSITY
Module Leader	ZAHRAA IBRAHIM	e-mail	zahraa.ibrahim.mahdi@uomus.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	MSC
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/09/2025	Version Number	1

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Objectives</b> أهداف المادة الدراسية	The applied mathematics curriculum aims to teach the student the principle of mathematics, lows , solve the equations and the electrical circuit.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none"> <li>1. Definition of differential equation, degree and order</li> <li>2. Solve five type of ordinary differential equations</li> <li>3. Laplace transform lows, properities</li> <li>4. Inverse laplace transform</li> <li>5. Second order differential equation, Homogenous, Non Homogenous</li> <li>6. Operations on the vector</li> <li>7. Types of coordinatees</li> </ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <p><u>Part A - Fundamentals of applied mathematics</u> Introduction to basic concepts, functions, ends, vectors, trigonometric and inverse functions, derivatives, applications of derivatives, integration, methods of integration, matrices</p> <p><u>Part B – Solve equations</u> Fundamental definitions,Solve five type of ordinary differential equations ,Laplace transform lows, properities,Inverse laplace transform,Second order differential equation, Homogenous, Non Homogenous, vectors, coordinatees.</p>
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials .

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	63	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
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<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	6	10% (10)	5 and 11	LO #1, #2 and #7
	<b>Assignments</b>	12	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>				
	<b>Report</b>				
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	15	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Vectors type ,Addition ,subtraction ,scaller multiplication ,length of vector, Distance formla , compute angle between vectors and convert coordinates
<b>Week 2</b>	Introduction about the ordinary of differential equations ,Types, The order and degree of differential equations ,Separable of ordinary of differential equations
<b>Week 3</b>	Homogenous and Non Homogenous of ordinary of differential equations
<b>Week 4,5</b>	Exact and not exact of ordinary of differential equations
<b>Week 6</b>	Linear ordinary of differential equations
<b>Week 7</b>	Bernoullis Equations
<b>Week 8</b>	Solve equation about differential equation
<b>Week 8</b>	Second order differential equation, Homogenous, Non Homogenous
<b>Week 9,10</b>	Introduction to laplace transform,Lows, Properties of laplace transform

<b>Week 11</b>	Examples about Properties of laplace transform
<b>Week 12</b>	Inverse laplace transform,Lows ,examples
<b>Week 13</b>	Solve equation of inverse laplace using Simple real poles, Repeated real poles, Un repeated complex poles
<b>Week 14</b>	Final Examination

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	CALCULAS thomas	Yes
<b>Recommended Texts</b>	كتاب التفاضل والتكامل د. رمضان محمد, د. احمد عبدالعالي	No
<b>Websites</b>		

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

**Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.